IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A polymer electrolyte fuel cell comprising a plurality of membrane electrode assemblies laminated via separators, each assembly comprising a membrane-form polymer electrolyte and a pair of a fuel electrode and an air electrode facing each other via the electrolyte, wherein the separator has a fuel gas channel for supplying a fuel gas to the fuel electrode, an oxidant channel for supplying an oxidant to the air electrode and a fluid channel for removing a heat generated by a reaction out of the cell system, and the separator is made of a metal/non-metal composite material which separator has faces made of non-metal which are in contact with the membrane electrode assemblies and has side walls of the fluid channel ~~which are~~ made of metal.

Claim 2 (Currently Amended): The polymer electrolyte fuel cell according to Claim 1, wherein the separator comprises a layer made of non-metal having the fuel gas channel on its surface, a layer made of metal having the fluid channel internally and a layer made of non-metal having the oxidant channel on its surface, where the layer made of metal is disposed between the layers made of non-metal which are laminated, and the fuel gas channel and the oxidant channel are disposed on the ~~surface~~ surfaces of the separator.

Claim 3 (Original): The polymer electrolyte fuel cell according to Claim 1 or 2, wherein the metal is a member selected from the group consisting of a metal containing aluminum in an amount of at least 80%, a metal containing titanium in an amount of at least 80% and stainless steel, and the non-metal comprises carbon material as the main component.

Claim 4 (Currently Amended): The polymer electrolyte fuel cell according to Claim 1[[,]] or 2 ~~or 3~~, wherein the non-metal is made of a highly electrically conductive carbon material.

Claim 5 (Currently Amended): The polymer electrolyte fuel cell according to Claim 1[[,]] or 2, [[3 or 4,]] wherein the faces of the separator which are in contact with the membrane electrode assemblies, are composed of a molded body made of expanded graphite particles.

Claim 6 (Currently Amended): The polymer electrolyte fuel cell according to Claim 4, wherein the separator is one wherein a layer made of a highly electrically conductive carbon material is formed on both sides of the layer made of metal having the fluid channel internally, by a printing method or a coating method employing a conductive paste containing the highly electrically conductive carbon material.

Claim 7 (Currently Amended): The polymer electrolyte fuel cell according to Claim 1[[,]] or 2, [[3, 4, 5 or 6,]] wherein a coating film containing ceramics and having a resistivity of at most $3\times10^{-4}\Omega\cdot$cm, is formed on the surface of the side walls of the fluid channel.

Claim 8 (Currently Amended): The polymer electrolyte fuel cell according to Claim 1[[,]] or 2, [[3, 4, 5, 6 or 7,]] wherein a layer containing ceramics and having a resistivity of at most $3\times10^{-4}\Omega\cdot$cm, is disposed at the interface between the metal and the non-metal components of the separator.

Please add the following new claims:

Claim 9 (New): The polymer electrolyte fuel cell according to Claim 3, wherein the non-metal is made of a highly electrically conductive carbon material.

Claim 10 (New): The polymer electrolyte fuel cell according to Claim 3, wherein the faces of the separator which are in contact with the membrane electrode assemblies, are composed of a molded body made of expanded graphite particles.

Claim 11 (New): The polymer electrolyte fuel cell according to Claim 9, wherein the separator is one wherein a layer made of a highly electrically conductive carbon material is formed on both sides of the layer made of metal having the fluid channel internally, by a printing method or a coating method employing a conductive paste containing the highly electrically conductive carbon material.

Claim 12 (New): The polymer electrolyte fuel cell according to Claim 3, wherein a coating film containing ceramics and having a resistivity of at most $3\times10^{-4}\Omega\cdot$cm, is formed on the surface of the side walls of the fluid channel.

Claim 13 (New): The polymer electrolyte fuel cell according to Claim 3, wherein a layer containing ceramics and having a resistivity of at most $3\times10^{-4}\Omega\cdot$cm, is disposed at the interface between the metal and the non-metal and non-metal components of the separator.

Claim 14 (New): The polymer electrolyte fuel cell according to Claim 4, wherein a layer containing ceramics and having a resistivity of at most $3\times10^{-4}\Omega\cdot$cm, is disposed at the interface between the metal and the non-metal components of the separator.

Claim 15 (New): The polymer electrolyte fuel cell according to Claim 5, wherein a coating film containing ceramics and having a resistivity of at most $3\times10^{-4}\Omega\cdot$cm, is formed on the surface of the side walls of the fluid channel.

Claim 16 (New): The polymer electrolyte fuel cell according to Claim 5, wherein a layer containing ceramics and having a resistivity of at most $3\times10^{-4}\Omega\cdot$cm, is disposed at the interface between the metal and the non-metal components of the separator.

Claim 17 (New): The polymer electrolyte fuel cell according to Claim 6, wherein a coating film containing ceramics and having a resistivity of at most $3\times10^{-4}\Omega\cdot$cm, is formed on the surface of the side walls of the fluid channel.

Claim 18 (New): The polymer electrolyte fuel cell according to Claim 6, wherein a layer containing ceramics and having a resistivity of at most $3\times10^{-4}\Omega\cdot$cm, is disposed at the interface between the metal and the non-metal components of the separator.

Claim 19 (New): The polymer electrolyte fuel cell according to Claim 7, wherein a layer containing ceramics and having a resistivity of at most $3\times10^{-4}\Omega\cdot$cm, is disposed at the interface between the metal and the non-metal components of the separator.